

REMARKS

Claims 1-16 are pending in the application. Claims 1-7 and 9-13 are amended, and new claims 15 and 16 have been added.

The Office action dated March 14, 2002 has been reviewed and the comments therein carefully considered. In the Office action, objection is made to the specification on page 4, line 27. The accompanying amendment addresses this issue set forth in paragraph 1 of the Office action.

Claims 5-14 have been objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. In response, applicant has amended the claims to address this issue, which is now deemed to have obviated the objection.

In addition, applicant submits herewith new claims 15 and 16. These claims are supported in the original specification and claims.

The amendments made to the specification reflect the amendments made to claim 1. The basis for the amendments to claim 1 may be found in the specification and in FIG. 1 and its related description on page 3, lines 22-27, and on page 2, third paragraph.

In addition to the foregoing, claims 1-4 have been rejected under 35 U.S.C. § 112 for the reasons set forth in paragraph 4 of the Office action. By the accompanying amendment, applicant has made a bona fide attempt to address the issues set forth in the Office action in this regard and believes that the claims are proper as amended.

Claims 1-4 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Ordo. This rejection is respectfully traversed.

In the Office action, it is contended that Ordo shows in figure 1 a gearbox adapter including a hub to be engageable with a gear shaft for rotation therewith, and at least one piston mounted within the hub, as well means for supplying fluid from the exterior of the hub to the first face of the at least one piston. Regarding claim 4, it is contended that Ordo shows in figure 1 the clutch means comprising a clutch pack consisting of a series of spaced plates engaged with the hub via an element for rotation therewith but which is reciprocable parallel to the longitudinal axis of the hub and a second series of spaced plates.

In summary, the Examiner relies on the Ordo patent specification as disclosing the invention as it shows, *inter alia*, in FIG. 1:

- a) "a gearbox adaptor 10 including a hub 54 to be engageable with a gear shaft 18 rotation therewith;"
- b) "...a different part 39 of the at least one clutch means being engageable with a gear 36 locatable on gear shaft adjacent to the hub. . ."

Applicant submits that Ordo does not includes feature a) and b) as noted by the Examiner and thus does not disclose the invention as claimed in claim 1. In order to sustain a rejection under 35 U.S.C. § 112, all the features of the claimed invention must be disclosed in the cited reference. Applicant believes Ordo does not disclose or suggest the claimed invention.

For example, Ordo does not disclose a hub on a gear shaft (i.e. an input shaft) as is maintained by the Examiner. By way of contrast, Ordo in FIG. 1 discloses a hub 54 engageable with (i.e. splined to) a counter shaft 18, the gear shaft in Ordo being the input shaft 14. Thus, Ordo does not anticipate amended claim 1 as the hub is not mounted on the gear shaft. In this regard, the Examiner is referred to FIG. 1 of the present application where it can be seen that the hub of the present invention is mounted on the gear shaft 3 (i.e. input shaft).

Furthermore, applicant submits that Ordo does not disclose a clutch means on a gear shaft, or a clutch means being directly engageable with a gear on a gear shaft (i.e. input shaft). By way of contrast, the clutch 40 in Ordo is mounted on a counter shaft 18 and, when the clutch is engaged, it simply connects to a headgear 39, which merely causes the counter shafting to rotate (col.3 lines 64-66). Thus the gears 62 and 64 on the counter shaft 18 require a synchronizer 87 (col. 4 lines 46-53) to then drivingly connect them to the counter shaft.

Moreover, applicant submits that Ordo does not disclose a means for supplying fluid to a piston via the hub as now claimed in claim 1.

Thus, for the above reasons, applicant respectfully requests withdrawal of the rejection of claims 1-4 as Ordo does not have all the features present in amended claim 1. Furthermore,

Application No. 09/744,515

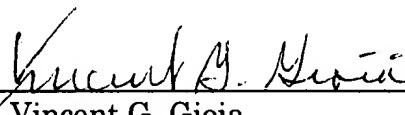
as claim 4 is dependent on amended claim 1, applicant submits that *ipso facto* this objection should also be withdrawn. Moreover, Ordo does not suggest the claimed invention or render the invention obvious.

With regard to the prior art of record, applicant submits that the prior art does not teach the invention claimed in amended claim 1.

In view of the foregoing amendment remarks, it is respectfully submitted that the application is now in condition for allowance and, accordingly, reconsideration and allowance earnestly solicited. If any questions remain regarding the allowability of the application, the Examiner is invited to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

The paragraph beginning on page 1, line 31, and ending on page 2, line 3, is amended to read as follows:

The present invention provides a gearbox adaptor including: a hub adapted to be engageable with a gear shaft for rotation therewith; at least one piston mounted with said hub; means for supplying fluid from the exterior of the hub to a first face of the or each said piston, so as to move said piston in a first direction; at least one clutch means adjacent the or each said piston, part of the or each said clutch means being engaged with said hub and a different part of the or each said clutch means being engageable with a gear locatable on said gear shaft adjacent said hub; ~~[the or each]~~ said gear being freely rotatable relative to said shaft, said clutch means being located and arranged such that movement of said piston in said first direction inter-engages said parts of said clutch to drivingly engage said gear ~~[and]~~ with said gear shaft.

In the Claims:

Claims 1-7 and 9-13 are amended as follows:

1. (Amended) A ~~[gear box]~~ gearbox adaptor including:
a hub adapted to be engageable with a gear shaft for rotation therewith;
at least one piston mounted within said hub;
means for supplying fluid from the exterior of the hub to a first face of ~~[the or each]~~ said piston, so as to move said piston in a first direction;
at least one clutch means adjacent ~~[the or each]~~ said piston, part of ~~[the or each]~~ said clutch means being engaged with said hub and a different part of ~~[the or each]~~ said clutch means being engageable with a gear locatable on said gear shaft adjacent said hub;
~~[the or each]~~ said gear being freely rotatable relative to said shaft, said clutch means being located and arranged such that movement of said piston in said first direction inter-engages said parts of said clutch to drivingly engage said gear ~~[and]~~ with said gear shaft.

2. (Amended) The adaptor as claimed in claim 1 wherein said hub, ~~[the or each]~~ said piston, and ~~[the or each]~~ said clutch means all are concentric and said hub is adapted to be concentrically engageable with said gear shaft.

3. (Amended) The adaptor as claimed in claim 2 wherein ~~[the or each]~~ said piston and ~~[the or each]~~ said clutch means both are annular.

4. (Amended) The adaptor as claimed in claim 2 ~~[or claim 3]~~ wherein ~~[the or each]~~ said clutch means comprises a clutch pack which consists of a first series of spaced plates, each of which is engaged with the hub for rotation therewith but which is reciprocable parallel to the longitudinal axis of said hub;

and a second series of spaced plates, each of which is engageable with a gear mounted upon said gear shaft but which is reciprocable parallel to the longitudinal axis of said hub; said second series of plates being interleaved with the plates of said first series.

5. (Amended) The adaptor as claimed in claim 2 ~~[any one claims 1-4]~~ wherein ~~[the or each]~~ said clutch means and ~~[the or each]~~ said piston are mounted in a recess in said hub.

6. (Amended) The adaptor as claimed in claim 5 further comprising a casing surrounding at least part of the exterior of said hub, said casing being mounted upon said hub but not rotatable therewith;

at least one first fluid passage being formed between the interior of the casing and the exterior of the hub, ~~[the or each]~~ said first fluid passage being in communication with said means for supplying fluid to a first face of ~~[the or each]~~ said piston, which comprises at least one second fluid passage formed through said hub.

7. (Amended) The adaptor as claimed in claim 1 ~~[any one of claims 1-4]~~ incorporating two said pistons and two said clutch means, the first piston and the corresponding first clutch means being mounted in a first recess formed in one end of the hub,

and the second piston and the corresponding second clutch means being mounted in a second recess formed in the other end of the hub;

wherein part of the first clutch means is engageable with a first gear and part of the second clutch means is engageable with a second gear.

9. (Amended) The adaptor as claimed in claim 1 [~~any one of the preceding claims~~] wherein said fluid is hydraulic fluid.

10. (Amended) The adaptor as claimed in claim 1 [~~any one of the preceding claims~~] wherein said fluid is pneumatic fluid.

11. (Amended) A sequential gearbox as hereinbefore defined, including a standard gearbox from which the synchro-hubs and cones have been removed and a gearbox adaptor as claimed in claim 1 [~~any one of claims 1-6~~] has been fitted to each gear, with part of each hub mounted on the gear shaft and each clutch means engaged with the corresponding gear.

12. (Amended) A sequential gearbox as hereinbefore defined, including a standard gearbox from which the synchro-hubs and cones have been removed and a gearbox adaptor as claimed in claim 7 [~~or claim 8~~] has been fitted between each pair of adjacent gears, with each hub mounted on the gear shaft between said two adjacent gears and part of one clutch means engaged with one of said gears and part of the other clutch means engaged with the other of said gears.

13. (Amended) A sequential gearbox as hereinbefore defined including a standard gearbox from which the synchro-hubs and cones have been removed and a gearbox adaptor as claimed in claim 1 has been fitted to each gear, with part of each hub mounted on the gear shaft and each clutch means engaged with the corresponding gear [~~claimed in claim 11 or claim 12~~], further including electronic control means which comprises two micro-switches which are connected via a sequencing arrangement to a set of solenoid valves, one solenoid valve being connected to the means for supplying fluid to each piston such that fluid is

Application No. 09/744,515

supplied to said piston when said solenoid valve is open and fluid is withdrawn from said piston when said solenoid valve is closed;

the control means being such that each time the first micro-switch is closed, the sequencing arrangement closes any solenoid valve which is open and opens the next solenoid valve in a predetermined first sequence;

and each time the second micro-switch is closed, the sequencing arrangement closes any solenoid valve which is open and opens the next solenoid valve in a predetermined second sequence.

New claims 15 and 16 have been added.

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